Equipments & Materials Processing

IEM Technologies (Bridgwater, UK) has launched the Excalibur waste treatment plant for on-site, cost-effective treatment of arsenic and phosphorus liquid waste streams from the abatement of exhaust hydride gases (offering financial, safety and environmental advantages over current practices of disposal to a licensed disposal facility or long-term storage).

On-site treatment allows the waste stream's arsenic and gallium content to be reclaimed. A typical system can handle up to 600 litres of liquid effluent in 24 hours.

The Excalibur integrates with IEM's Gemini Mark II hydride abatement system for removal of toxic discharges to atmosphere.

MKS Instruments Inc (East Hartford, CN, USA) has launched the On-Line MultiGas 2030 FTIR-based Analyzer from On-Line Products for monitoring single emission stacks in fabs for PFC abatement efficiency. It is capable of 1 ppb sensitivity for more than 30 gas species in effluent streams that contain up to 30% water.

With its ability to permanently store calibration spectra for gas species, it removes the need to use costly gas cylinders. A small volume, corrosion-resistant gas cell enables percent to ppb-level detection of highly toxic gases, without a cell change.

For Trikon Technologies Inc (Newport, Wales, UK) Q3/2001 sales were US$19.7m (down 35% on Q3/2000 and 29% on Q2/2001). 40% of shipments were to new accounts.

In early October Trikon cut staffing by 14% to 406 (mainly in the manufacturing group), suspended profit-related bonus payments for 2001, and froze salaries.

High-mobility phosphine

Matheson Tri-Gas (Parsippany, NJ, USA) has launched the "Ultima PH_3" ultra-pure grade of phosphine, made at its new hydride gas plant in New Johnsonville, TN, USA after its Advanced Technology Center made improvements to the process for parent company Nippon Sanso Corp's "Superphosphine" top-grade phosphine (available in Japan and Taiwan but not the US or Europe). It will also be available in Asia through NSC and in European through Messer Nippon Sanso.

The quality was performance tested by Ed Gagnon and co-workers at Bandwidth Technology (Bedford, MA, USA) in a series of OMVPE growths of 9 m undoped InP on InP, achieving a mobility of 287,000 $cm^2 V^{-1} s^{-1}$ at 77°K (exceeding the industry benchmark of 264,000 $cm^2 V^{-1} s^{-1}$ and approaching the record of 305,000 $cm^2 V^{-1} s^{-1}$).

The average mobility of InP is over 30% higher than with its standard electronic-grade phosphine, said Advanced Technology Center technical director Dr Virginia Houlding. "At this point we know we have made substantial improvements in the levels of moisture and oxygen-containing impurities, but we suspect that the increased performance is also due to removal of trace impurities that are electrically active."

Also critical is the quality of the TMI (Opto-Grade TMI from Shipley). Matheson and Shipley are pursuing a joint investigation to correlate trace metal and dopant impurities in Group III and Group V sources using InP mobility as one of the analytical tools.

Philips Analytical opens new facility

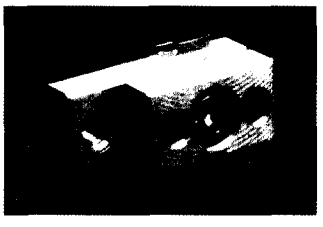
Philips Analytical's new plant in Waterloo, Canada.

Philips Analytical (Almelo, The Netherlands) has opened its newest plant, a 2300 m^2 office, production and demo facility at P565 Kumpf drive, Waterloo, ON N2V 1K3, Canada (near the old facility) dedicated to its growing orders for compound semiconductors/SiGe.

General Manager is Huub Smit. The plant currently holds about 50 staff, but can accommodate about 100.

Automated TEM sample prep

At November's *ISTFA 2001* in Santa Clara, CA, USA, **SELA Ltd** (Sunnyvale, CA, USA) launched the TEMpro stand-alone TEM sample preparation system, which automatically produces a 25 µm thin sample mounted on a support grid and loaded in a holder - ready in 15 minutes for final thinning to electron transparency in a Focused Ion Beam workstation.



Detail from SELA's new TEMpro sample preparation system.

Several new features and changes have resulted in more precise thinning, fewer consumables and a simpler interface for the operator. Preparation and delivery of consumables to the system, such as the glue capsule and needle applicator, have been simplified.

Purifier system for SiGe epi

Matheson Tri-Gas Inc (Parsippany, NJ, USA) has launched the NANOCHEM Sidecar Purifier System, an integrated solution which houses the most commonly used NANOCHEM brand, HCl, H_2 and N_2 purifiers in a single enclosure for point-of-use purification of process gases for the low-temperature SiGe process with ASM's Epsilon single-wafer epi reactors. It is designed to conserve space and optimize purifier operation, for either direct integratation onto the process tool or installation as a stand-alone system.

Point-of-use gas purification has been found to be an effective method of oxygen and moisture control to achieve optimum performance in SiGe and other low-temperature epi applications.

The system features enhanced purge capabilities, dual process isolation valves, flow control for precise purifier conditioning, and end point detection that can be connected to the Epsilon controller.

* Matheson has appointed Bill Kroll as president & CEO (over all five operating divisions). He succeeds Paul Asaoka, who will continue to serve on the Board of Directors and as Executive Advisor and as president of Nippon Sanso USA (the US holding company of Matheson's parent company Nippon Sanso Corp).